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10/709,072	04/12/2004	Chia-Hung Lin	WTNG-00600	3071

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EXAMINER	
SIM, YONG H	
ART UNIT	PAPER NUMBER
2629	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/709,072	LIN, CHIA-HUNG	
	Examiner	Art Unit	
	YONG SIM	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 8-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 8-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1 – 6 and 8 - 17 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1 – 6, 8 – 12 and 14 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ben-David et al. (Hereinafter "Ben-David" WO 01/95544) in view of Marshall (US 5,774,196) and further in view of Park (US 2002/0163527A1).

Re claim 1, Ben-David teaches a projector (48, Fig. 3B) comprising: a housing (Pg. 6, lines 20 – 21; "The present invention is suitable for various types of electronic

display devices, such as televisions and monitor devices." A conventional television comprises a "housing."); a light source (50, Fig. 3B) installed in the housing;

a color wheel (54, Fig. 3B) for separating the light from the light source into color light (Pg. 16, lines 4 – 5; "passing white light from a source through appropriate color filters to form colored light.");

an image modulator for modulating the color light from the color wheel, and projecting the color light to form an image on a screen (60, Fig. 3B, Pg. 16, lines 11 – 14; "light illuminates spatial light modulator which determines the particular color for being displayed.");

a scalar (72, 74, 76, Fig. 3B) connected to the image modulator for controlling the image modulator for controlling the image modulator to create a gray-level image for each of one or more predetermined colors (Pg. 18, lines 8 – 18; "The brightness of that position is determined by the relevant data pixel in the image. The values for the pixels of the image are optionally and preferably retrieved from an image data file/a scalar for generating a grey-level image signal." The determination of the brightness of each pixel/one or more predetermined color translates to a gray-scale image.).

But does not describe a gray level image for facilitating adjustment of a color wheel delay of the projector.

However, Marshall teaches a method of manually adjusting a color wheel delay of a spatial light modulator display system by a user by pressing buttons on a remote control (Marshall: Col. 3, lines 43 - 50; Note: The display system "automatically" performs the process, but the user must "manually" activate to adjust the color wheel

delay through the user interface. A user who perceives a gray level image on a screen will activate the color wheel delay using an interface such as a remote. Any gray-level image on the screen can be used to facilitate a delay of the color wheel to shift or change the color of the image. A user must view a gray-level image in order to discern the change in the gray-level image after a delay has been caused by operating a remote by the user.). Also, the method can be performed manually by perceiving the color using the human eye, and making an electrical or mechanical adjustment (Marshall: Col. 5, lines 53 – 56).

Therefore, taking the combined teachings of Ben-David and Marshall, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the idea of manually adjusting the color wheel delay of a projector as taught by Marshall into the projector of Ben-David to obtain a projector comprising a color wheel wherein the color wheel delay of the projector is manually adjusted using a user interface to allow quick and easy alignment without the need for special test equipment, such as oscilloscopes and photodiodes, and the associated tedious and labor intensive process of matching a modulation sequence (Col. 6, lines 39 - 43).

The combined teachings of Ben-David and Marshall teach a projector comprising a color wheel wherein the color wheel delay of the projector is manually adjusted using a user interface.

But does not describe projecting an on screen display (OSD) on a screen, the OSD comprising the gray-level image created by the scalar and wherein the gray-level

image is created for a predetermined color and includes a plurality of pixels, each of the plurality of pixels representing a different shade of the predetermined color.

However, Park teaches an on screen display (OSD) for adjusting the brightness levels and color levels of the monitor to create a monitor profile for storage wherein the OSD comprises a gray-level image comprises an image that created for a predetermined color and includes a plurality of pixels, each of the plurality of pixels representing a different shade of the predetermined color (Park: See Figs. 8 - 11. The OSD's comprise an selection option to choose a particular color and a scale comprising a plurality of pixels representing different shade to indicate the change of the color after the adjustment.)

Therefore, taking the combined teachings of Ben-David, Marshall and Park, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the idea of using an OSD to make adjustment of color of the monitor using a scale taught by Park into a projector comprising a color wheel wherein the color wheel delay of a projector is adjusted with a user's remote controller as taught by Ben-David and Marshall to obtain a projector wherein an OSD displays gray-scale images with a plurality of pixels representing different shade of color of color wheel delay for color adjustment to provide a user a scaled visual assistance for a real time acurate adjustment capability.

Re claim 2, Ben-David teaches the projector of claim 1 wherein the image modulator is a digital micromirror device (DMD) (Pg. 17, lines 10 – 14; "modulation type include DMD.").

Re claim 3, Ben-David teaches the projector of claim 1 wherein the gray-level image has 32 gray-levels (Pg. 22, lines 2 – 3; "The various "gray levels" of the illumination can be achieved in different ways depending on the type of spatially modulated mask is used.").

Re claim 4, Ben-David teaches the projector of claim 1 wherein gray-level images are generated for 3 colors (Pg. 18, line 1; "Filter wheel holds at least four color filters.").

Re claim 5, Ben-David teaches the projector of claim 4 wherein the 3 colors having gray-level images are red, green, and blue (Pg. 20, line 3 – 4; "obtain digital RGB (three-color) image data 72." Note that image data 72 corresponds to the scalar as discussed in claim 1, which is used to generate gray-level images.) .

Claim 6 recites limitations that have been covered in claim 1. Therefore, it has been analyzed and rejected w/r to claim 1. With respect to said method for adjusting, the applicant merely recites the elements and limitations as described in claim 1, and

does not disclose a specific method of adjusting a projector. Therefore, it has been rejected w/r to claim 1.

Claim 8 recites limitations that have been covered in claim 2. Therefore, it has been analyzed and rejected w/r to claim 2.

Claim 9 recites limitations that have been covered in claim 3. Therefore, it has been analyzed and rejected w/r to claim 3.

Claim 10 recites limitations that have been covered in claim 4. Therefore, it has been analyzed and rejected w/r to claim 4.

Claim 11 recites limitations that have been covered in claim 5. Therefore, it has been analyzed and rejected w/r to claim 5.

Re claim 12, Ben-David teaches a projector (48, Fig. 3B) comprising: a housing (Pg. 6, lines 20 – 21; "The present invention is suitable for various types of electronic display devices, such as televisions and monitor devices." A conventional television comprises a "housing."); a light source (50, Fig. 3B) installed in the housing;

a color wheel (54, Fig. 3B) for separating the light from the light source into color light (Pg. 16, lines 4 – 5; "passing white light from a source through appropriate color filters to form colored light.");

an image modulator for modulating the color light from the color wheel, and projecting the color light to form an image on a screen (60, Fig. 3B, Pg. 16, lines 11 – 14; "light illuminates spatial light modulator which determines the particular color for being displayed.");

a control circuit connected to the image modulator for controlling the image modulator to operate synchronously with the color wheel (Pg. 18, lines 8 – 10; "the loading of the data into spatially modulated mask is synchronized by a timing system, according to the rotation of filter wheel");

a scalar (72, 74, 76, Fig. 3B) connected to the image modulator for generating a gray-level image signal; wherein the color light is modulated to form a gray-level image on the screen through a gray-level image signal outputted to the image modulator (Pg. 18, lines 8 – 18; "The brightness of that position is determined by the relevant data pixel in the image. The values for the pixels of the image are optionally and preferably retrieved from an image data file/a scalar for generating a grey-level image signal." The determination of the brightness of each pixel/one or more predetermined color translates to a gray-scale image.),

But does not expressly disclose a user interface for controlling the color wheel delay value and an image modulator that is controlled by the user interface to operate synchronously with the color wheel according to the gray-level image.

However, Marshall teaches a method of manually adjusting a color wheel delay of a spatial light modulator display system by a user by pressing buttons on a remote control/user interface (Marshall: Col. 3, lines 43 - 50; Note: The display system

"automatically" performs the process, but the user must "manually" activate to adjust the color wheel delay through the user interface.). Also, the method can be performed manually by perceiving the color/gray-level image using the human eye, and making an electrical or mechanical adjustment (Marshall: Col. 5, lines 53 – 56).

Therefore, taking the combined teachings of Ben-David and Marshall, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the idea of manually adjusting the color wheel delay of a projector as taught by Marshall into the projector of Ben-David to obtain a projector comprising a color wheel wherein the color wheel delay of the projector is manually adjusted using a user interface to allow quick and easy alignment without the need for special test equipment, such as oscilloscopes and photodiodes, and the associated tedious and labor intensive process of matching a modulation sequence (Col. 6, lines 39 - 43).

The combined teachings of Ben-David and Marshall teach a projector comprising a color wheel wherein the color wheel delay of the projector is manually adjusted using a user interface.

But does not describe the gray-level image created by the scalar and wherein the gray-level image is created for a predetermined color and includes a plurality of pixels, each of the plurality of pixels representing a different shade of the predetermined color.

However, Park teaches an on screen display (OSD) for adjusting the brightness levels and color levels of the monitor to create a monitor profile for storage wherein the OSD comprises a gray-level image comprises an image that created for a predetermined color and includes a plurality of pixels, each of the plurality of pixels

representing a different shade of the predetermined color (Park: See Figs. 8 - 11. The OSD's comprise an selection option to choose a particular color and a scale comprising a plurality of pixels representing different shade to indicate the change of the color after the adjustment.)

Therefore, taking the combined teachings of Ben-David, Marshall and Park, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the idea of using an OSD to make adjustment of color of the monitor using a scale taught by Park into a projector comprising a color wheel wherein the color wheel delay of a projector is adjusted with a user's remote controller as taught by Ben-David and Marshall to obtain a projector wherein an OSD displays gray-scale images with a plurality of pixels representing different shade of color of color wheel delay for color adjustment to provide a user a scaled visual assistance for a real time acurate adjustment capability.

Re claim 14, Marshall teaches in which said user interface comprises control keys accessible to said user which allow said user to increase or decrease the color wheel delay values (Col. 3, lines 42 – 47; "the apparatus can be embodied into the display system and performed by a consumer, such as using buttons on a remote control/user interface").

Re claim 15, Takeuchi teaches in which said on screen display also display an adjustment check that allows the user to see how much the color wheel delay value has

been adjusted (Takeuchi teaches a scalar displayed on an OSD wherein the bar of the scalar on Fig. 4 moves left and right to allow the user to see the amount of the adjustment value).

The limitations of claim 16 are substantially similar to the limitations of claim 1. Therefore, it has been analyzed and rejected substantially similar to claim 1.

The limitations of claim 17 are substantially similar to the limitations of claim 6. Therefore, it has been analyzed and rejected substantially similar to claim 6.

4. **Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable Marshall in view of Park.**

Re claim 13, Marshall teaches a method for manually adjusting the color accuracy of a projector (10 "display system" Fig. 1), the projector comprising a color wheel (12 "color wheel" Fig. 1) for separating light into color light, an image modulator (26 "DMD" Fig. 1) for modulating the color light from the color wheel, a control circuit (30 "DMD controller" Fig. 1) for controlling the image modulator to operate synchronously with the color wheel, and a user interface for manually adjusting the color wheel delay value (Col. 3, lines 42 – 47), the method comprising:

and using the user interface for manually adjusting the color wheel delay value (Col. 3, lines 42 – 47; "the apparatus can be embodied into the display system and

performed by a consumer, such as using buttons on a remote control/user interface") and the control circuit to control the image modulator to operate according to rotation of the color wheel for accurately projecting an image on the screen (Col. 5, lines 28 – 40; "DMD controller timely writes/synchronize the various digital color data from memory banks to modulate the correspondingly color light and create a light image.").

But does not describe the gray-level image created by the scalar and wherein the gray-level image is created for a predetermined color and includes a plurality of pixels, each of the plurality of pixels representing a different shade of the predetermined color.

However, Park teaches an on screen display (OSD) for adjusting the brightness levels and color levels of the monitor to create a monitor profile for storage wherein the OSD comprises a gray-level image comprises an image that created for a predetermined color and includes a plurality of pixels, each of the plurality of pixels representing a different shade of the predetermined color (Park: See Figs. 8 - 11. The OSD's comprise an selection option to choose a particular color and a scale comprising a plurality of pixels representing different shade to indicate the change of the color after the adjustment.)

Therefore, taking the combined teachings of Marshall and Park, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the idea of using an OSD to make adjustment of color of the monitor using a scale taught by Park into a projector comprising a color wheel wherein the color wheel delay of a projector is adjusted with a user's remote controller as taught by Marshall to obtain a projector wherein an OSD displays gray-scale images with a plurality of pixels

representing different shade of color of color wheel delay for color adjustment to provide a user a scaled visual assistance for a real time acurate adjustment capability.

Conclusion

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YONG SIM whose telephone number is (571)270-1189. The examiner can normally be reached on Monday - Friday (Alternate Fridays off) 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Y. S./
Examiner, Art Unit 2629
4/21/08

/Amr Awad/
Supervisory Patent Examiner, Art Unit 2629